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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,048

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Chi Bun Ching

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06/04/2009

K&L Gates LLP

3580 Carmel Mountain Road

Suite 200

San Diego, CA 92130

EXAMINER

LAU, JONATHAN S

ART UNIT

PAPER NUMBER

1623

MAIL DATE

DELIVERY MODE

06/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,048	Applicant(s) CHING ET AL.	
	Examiner Jonathan S. Lau	Art Unit 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-40 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,6-9,12,21-23,25,32,34 and 36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 5, 10, 11, 13-20, 24, 31, 33 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is responsive to Applicant's Amendment and Remarks, filed 20 Feb 2009, in which claim 1 and 10 are amended to change the scope and breadth of the claim and claims 3 and 4 are amended to change dependency, claim 2 is canceled, and claims 5-9, 11, 12, 16, 21 24 and 25 are amended to correct minor informalities.

This application is the national stage entry of PCT/SG04/00413, filed 15 Dec 2004; and claims benefit of provisional application 60/529,112, filed 15 Dec 2003.

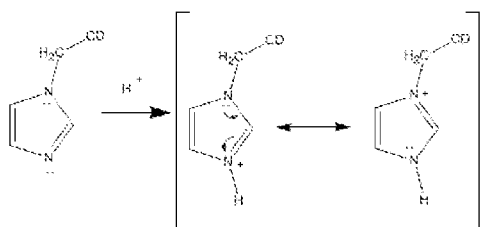
Claims 1 and 3-40 are pending in the current application. Claims 26-30 and 37-40, drawn to non-elected inventions, are withdrawn. Claims 3-4, 6-9, 12, 21-23, 25, 32, 34 and 36, drawn to non-elected species, are withdrawn. Claims 1, 5, 10, 11, 13-20, 24, 31, 33 and 35 are examined on the merits herein.

Election/Restrictions

Applicant's traverse of the new grounds of finding Lack of Unity of Invention detailed in the previous Office Action, mailed 27 Aug 2008, in the reply filed on 20 Feb 2009 is acknowledged. The traversal is on the grounds that Breslow et al. discloses a charge neutral species and Breslow et al. does not explicitly disclose a compound encompassed by the claims as amended. This is not found persuasive because while Breslow et al. only explicitly discloses a charge neutral species, Breslow et al. also discloses the species at pH 5 (page 3228, figure 1 at top of left column). It is well

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known in the art that imidazole has a pK_a of around 7, therefore Breslow et al. implicitly discloses the charged species at pH 5. Further, it is well known in the art that the charged species of imidazole exists as a resonance structure,



, wherein the charge is equally distributed between

the two nitrogens. Therefore the disclosure of Breslow et al. implicitly discloses all features of the claimed invention as filed. With regard to the claims as amended, the invention as claimed lacks an inventive step over Breslow 1978 in view of Breslow 1993 as recited below.

The requirement is still deemed proper and is therefore made FINAL in view of Applicant's Amendment, filed 20 Feb 2009.

Rejections Withdrawn

Applicant's Amendment, filed 20 Feb 2009, with respect to claims 1, 5, 10, 11, 13-20, 24, 31, 33 and 35 rejected under 35 U.S.C. 102(b) as being anticipated by Breslow et al. (Journal of the American Chemical Society, 1978, 100(10), p3227-3229, cited in PTO-892) has been fully considered and is persuasive, as independent claims 1 and 10 as amended do not encompass the compound wherein R_5 is hydrogen and dependent claims 5, 11, 13-20, 24, 31, 33 and 35 depend from claims 1 and 10.

This rejection has been **withdrawn**.

The following are modified grounds of rejection necessitated by Applicant's Amendment, filed 20 Feb 2009, in which claim 1 and 10 are amended to change the scope and breadth of the claim and claims 3 and 4 are amended to change dependency, claim 2 is canceled, and claims 5-9, 11, 12, 16, 21 24 and 25 are amended to correct minor informalities.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Amended Claims 1, 5, 10, 11, 13-20, 24, 31, 33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breslow et al. (Journal of the American Chemical Society, 1978, 100(10), p3227-3229, cited in PTO-892), hereafter Breslow

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1978, in view of Breslow, R. (Proceedings of the National Academy of Sciences of the USA, 1993, 90, p1208-1211, cited in PTO-892), hereafter Breslow 1993.

Breslow 1978 discloses the compound β -cyclodextrinyl-6-monoimidazole prepared from reacting imidazole with β -cyclodextrinyl-6-monotosylate (page 3228, right column, paragraph 1 and page 3227, right column, paragraph 1). The product of this reaction is the cationic β -cyclodextrinyl-6-monoimidazolium with a tosylate counter ion.

Breslow 1978 does not specifically disclose the compound β -cyclodextrinyl-6-monomethylimidazole (instant claims 1 and 10).

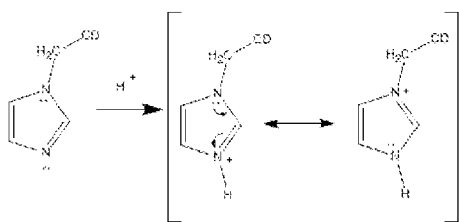
Breslow 1993 teaches the substitution of imidazole with N-methylimidazole for determining the mechanism of RNA cleavage (page 1208, right column, paragraph 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Breslow 1978 and Breslow 1993 to substitute imidazole with N-methylimidazole. Both Breslow 1978 and Breslow 1993 are in the field of studying the mechanism of catalysis of RNA cleavage. One of ordinary skill in the art would be motivated to combine the imidazole disclosed by Breslow 1978 with the teaching of substituting imidazole with N-methylimidazole taught by Breslow 1993 in order to study the mechanism of catalysis of RNA cleavage in the same way. One of ordinary skill in the art would have a reasonable expectation of success in combining Breslow 1978 and Breslow 1993 because of the structural similarity of imidazole with N-methylimidazole as nucleophiles to displace a tosylate leaving group.

Response to Applicant's Remarks:

Applicant's Remarks, filed 20 Feb 2009, have been fully considered and found not to be persuasive.

Applicant notes that Breslow 1978 does not explicitly disclose a cationic charged species. However while Breslow 1978 only explicitly discloses a charge neutral species, Breslow et al. also discloses the species at pH 5 (page 3228, figure 1 at top of left column). It is well known in the art that imidazole has a pK_a of around 7, therefore Breslow 1978 implicitly discloses the charged species at pH 5. Further, it is well known in the art that the charged species of imidazole exists as a resonance structure,



, wherein the charge is equally distributed between the two nitrogens. Therefore the disclosure of Breslow 1978 implicitly discloses a cationic charged species.

Applicant notes that Breslow 1978 and Breslow 1993 are drawn to the role of the imidazole buffer system. However, Breslow 1993 teaches using the system in which imidazole covalently linked to a cyclodextrin as an enzyme mimic for RNA cleavage (page 1211, left column, paragraph 2), providing guidance for one of ordinary skill in the art to combine the teaching of Breslow 1993 and Breslow 1978. Further Breslow 1993 teaches the substitution of imidazole with N-methylimidazole for determining the mechanism of RNA cleavage (page 1208, right column, paragraph 2) to probe the role of the proton in the catalyst. One of ordinary skill in the art would be motivated to

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combine the imidazole disclosed by Breslow 1978 with the teaching of substituting imidazole with N-methylimidazole taught by Breslow 1993 in order to study the mechanism of catalysis of RNA cleavage in the same way.

Conclusion

No claim is found to be allowable.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan S. Lau whose telephone number is 571-270-

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3531. The examiner can normally be reached on Monday - Thursday, 9 am - 4 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on 571-272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jonathan Lau
Patent Examiner
Art Unit 1623

/Shaojia Anna Jiang/
Supervisory Patent Examiner
Art Unit 1623